What is claimed is:

1. A process for producing a propylene-ethylene block copolymer in which propylene is copolymerized with ethylene using a catalyst system comprising a metallocene catalyst (1) preparing high crystalline polypropylene, a metallocene catalyst (2) preparing low crystalline polypropylene, a porous carrier (3), aluminoxane (4) or a compound (4) which can form an ionic complex by reacting with the metallocene catalysts described above and, if necessary, an organic aluminum compound (5).

2. The process for producing a propylene-ethylene block copolymer as described in claim 1, wherein propylene is polymerized in a first step, and propylene and ethylene are random-copolymerized in a second step.

3. The process for producing the propylene-ethylene block copolymer as described in claim 2, wherein the propylene-ethylene block copolymer satisfies the following requirement of:

(1) a triad chain fraction f_{EEE} of [EEE]$\leqq$0.1 (mole %),

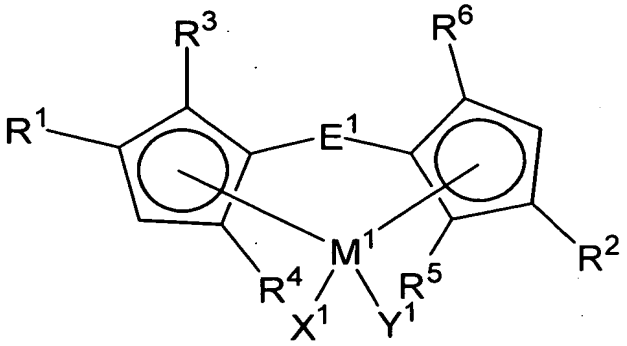
(2) R1·R2$\geqq$0.5,

(3) its intrinsic viscosity [η]$\geqq$1.0 dl/g, and

(4) an intrinsic viscosity [η] of a xylene-soluble fraction≧1.0 dl/g.

4. The process for producing the propylene-ethylene block copolymer as described in claim 1 or 2, wherein the metallocene catalyst preparing high crystalline polypropylene is a monocross-linked metallocene catalyst, and the metallocene catalyst preparing low crystalline polypropylene is a dicross-linked metallocene catalyst.

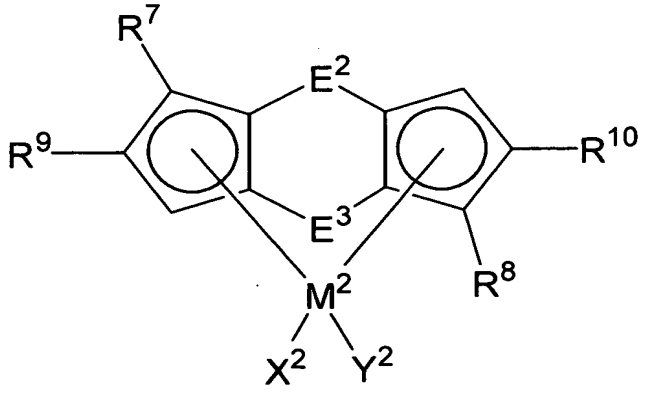
5. The process for producing the propylene-ethylene block copolymer as described in claim 4, wherein the monocross-linked metallocene catalyst is a transition metal compound represented by general formula (I):



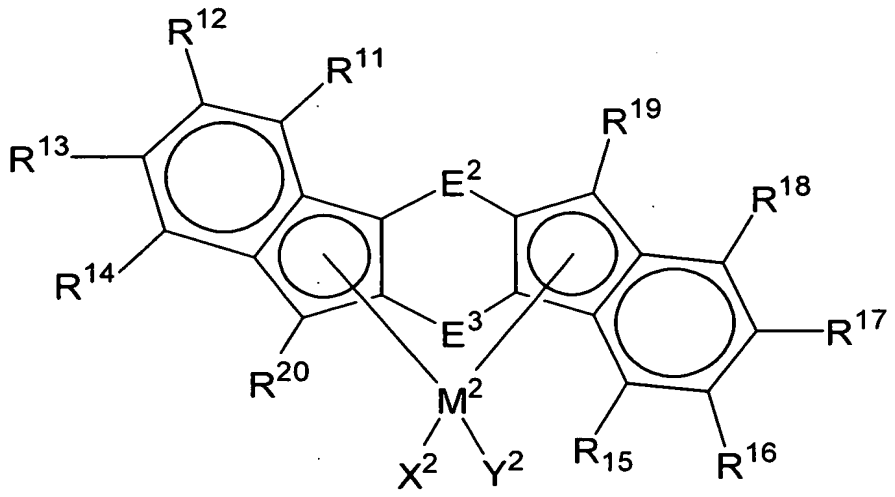
• • • (I)

wherein E^1 represents a bonding group which cross-links two conjugate five-membered ring ligands; R^1 and R^2 each represent a hydrocarbon group, a halogen

atom, an alkoxy group, a silicon-containing hydrocarbon group, a phosphorus-containing hydrocarbon group, a nitrogen-containing hydrocarbon group or a boron-containing hydrocarbon group; R^3 to R^6 each represent hydrogen, a hydrocarbon group, a halogen atom, an alkoxy group, a silicon-containing hydrocarbon group, a phosphorus-containing hydrocarbon group, a nitrogen-containing hydrocarbon group or a boron-containing hydrocarbon group; M^1 represents a transition metal of the IV to VI group in the periodic table; X^1 and Y^1 each represent a covalent bonding ligand; and X^1 and Y^1 may be combined with each other to form a ring structure; and the dicross-linked metallocene catalyst is a transition metal compound represented by general formula (II) or general formula (III):



• • • (II)



• • • (III)

wherein E^2 and E^3 represent a bonding group which cross-links two conjugate five-membered ring ligands; R^9 to R^{18} each represent hydrogen, a hydrocarbon group, a halogen atom, an alkoxy group, a silicon-containing hydrocarbon group, a phosphorus-containing hydrocarbon group, a nitrogen-containing hydrocarbon group or a boron-containing hydrocarbon group; R^7, R^8, R^{19} and R^{20} each represent a hydrocarbon group, a halogen atom, an alkoxy group, a silicon-containing hydrocarbon group, a phosphorus-containing hydrocarbon group, a nitrogen-containing hydrocarbon group or a boron-containing hydrocarbon group; M^2 represents a transition metal of the IV to VI group in the periodic table; X^2 and Y^2 each represent a

covalent bonding ligand; and X^1 and Y^1 may be combined with each other to form a ring structure.

6. The process for producing the propylene-ethylene block copolymer as described in claim 4, wherein the monocross-linked metallocene catalyst is dimethylsilylenebis(2-methylbenzoindenyl)zirconium dichloride or dimethylsilylenebis(2-methyl-4-phenylindenyl)zirconium dichloride, and the dicross-linked metallocene catalyst is (1,2'-dimethylsilylene)(2,1'-dimethylsilylene)-bis(3-trimethylsilylmethylindenyl)zirconium dichloride or (1,2'-dimethylsilylene)(2,1'-dimethylsilylene)-bis(3-n-butylindenyl)zirconium dichloride.

7. A propylene-ethylene block copolymer produced by the process as described in claim 1 or 2.

8. The propylene-ethylene block copolymer as described in claim 7, wherein an elastic modulus E is less than 330 (MPa), and an internal haze H is less than 55 (%).